UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte STIAN HEGNA and FABIEN JULLIARD

_____

Appeal 2016-003010
Application 13/483,327
Technology Center 2100

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Before JEAN R. HOMERE, AMBER L. HAGY, and
DAVID J. CUTITTA II, *Administrative Patent Judges.*

HAGY, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants[1] appeal under 35 U.S.C. § 134(a) from the Examiner's
Final Rejection of claims 1–23, which are all of the pending claims. (Claims
App'x.) We have jurisdiction under 35 U.S.C. § 6(b).

We reverse and enter a new ground of rejection pursuant to our
authority under the provisions of 37 C.F.R. § 41.50(b).

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[1] Appellants identify the real party in interest as PGS Geophysical AS.
(App. Br. 1.)

Introduction

Appellants' application is directed to "marine seismic survey techniques" used, for example, to obtain information about "valuable mineral resources" that may be located in underwater, subterranean formations. (Spec. ¶ 1.) These techniques include using acoustic sources to generate sound waves. (*Id.*) Each source has an associated "near-field signature and a far-field signature." (*Id.* ¶ 27.) When multiple sources are used in an array at the same time, sound waves from these sources may impinge on each other. (*See id.* ¶ 28.) Appellants' Specification indicates that it is, therefore, useful to calculate a "notional" source signature, which "is an isolated near-field signature with the pressures created by other neighboring source elements and by the reflections on the free surface removed." (*Id.* ¶ 32.) According to Appellants, their application describes and claims "[m]ethods and systems for computing notional source signatures from modeled notional signatures and measured near-field signatures." (Abs.)

Exemplary Claim

Claims 1, 9, and 17 are independent. Claim 1, reproduced below with the disputed limitation italicized, is exemplary of the claimed subject matter:

> 1. A method for computing notional source signatures to be carried out by a computer system that includes one or more processors and one or more data-storage devices, the method comprising:
>
> for each source element of an acoustic source:
>
> *computing a modeled near-field signature from modeled notional source signatures, each modeled*

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> *notional source signature associated with a source element of the acoustic source;*
>
> computing a near-field signature as a weighted summation of a recorded near-field signature of the source element and the modeled near-field signature; and
>
> computing notional source signatures from the near-field signatures.

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Parkes	US 2005/0259513 A1	Nov. 24, 2005
van Manen et al.	US 2009/0043545 A1	Feb. 12, 2009 ("van Manen")
Lippuner et al.	US 2012/0222465 A1	Sept. 6, 2012 ("Lippuner")

REJECTIONS

Claims 1–5, 7–13, 15–21, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Parkes and van Manen. (Final Act. 7–11.)

Claims 6, 14, and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Parkes, van Manen, and Lippuner. (Final Act. 11–12.)

ISSUE[2]

Whether the Examiner erred in finding Parkes teaches or suggests "computing a modeled near-field signature from modeled notional source signatures, each modeled notional source signature associated with a source

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[2] Appellants' contentions present additional issues. Because the identified issue is dispositive of Appellants' arguments on appeal, we do not reach the additional issues.

element of the acoustic source," as recited in independent claim 1 and commensurately recited in independent claims 9 and 17.

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellants' arguments the Examiner has erred. We concur with Appellants' contention the Examiner errs in finding Parkes teaches or suggests the disputed limitation. (App. Br. 7; Reply Br. 5–6.)

The Examiner relies in particular on Parkes' teaching in paragraph 69, which describes modeling source signatures, and states "the modeled source signatures are generated by the model in the *form of notional source signatures*. Thus, in the preferred embodiment, the measured source signatures are converted to notional source signatures for comparison." (Parkes ¶ 69 (emphasis added); *see* Ans. 9.) We agree Parkes teaches a *modeled notional source signature*, which is recited in the claims, but we disagree Parkes also teaches "*computing a modeled near-field signature from* modeled notional source signatures," as also recited in the claims. (App. Br. 18 (Claims App'x) (emphasis added); *see also* Reply Br. 5.) As Appellants note, "[t]he descriptions in paragraphs [0054]-[0056], [0064]-[0067] and [0069]" of Parkes "demonstrate that Parkes teaches computing a modeled source signature *in the form of a notional source signature* from measured physical parameters in order to compare the modeled source signature with a measured source signature that has been converted to a notional source signature." (Reply Br. 5) (emphasis added.) In other words, Parkes teaches comparing a modeled source signature with a measured source signature, where both signatures have been converted to notional

signatures. We agree with Appellants this disclosure in Parkes does not teach or suggest "computing a modeled near-field signature from modeled notional source signatures," as recited in claim 1 and commensurately recited in claims 9 and 17.

For the foregoing reasons, we will not sustain the Examiner's rejection of independent claims 1, 9, and 17, or the rejections of the claims dependent thereon. Although the Examiner relies on an additional reference, Lippuner, in rejecting claims 6, 14, and 22, the Examiner's findings regarding Lippuner do not remedy the deficiencies in the Examiner's findings regarding Parkes as noted above.

NEW GROUND OF REJECTION

Claims 1–23 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

The Supreme Court has set forth "a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014) (citing *Mayo Collaborative Servs. v. Prometheus Labs, Inc.*, 132 S. Ct. 1289, 1296–97 (2012)). According to the Supreme Court's framework, we must first determine whether the claims at issue are directed to one of those concepts (i.e., laws of nature, natural phenomena, and abstract ideas). *Id.* If so, we must secondly "consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." *Id.* The Supreme Court characterizes the second step of the analysis as "a search

for an 'inventive concept'—*i.e.*, an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'" *Id.* (alteration in original).

Independent claims 1, 9, and 17 are directed to a method, non-transitory computer-readable medium, and computer system, respectively, comprising a processor configured to transform data. In other words, the independent claims are directed to computations performed by a computer (i.e., software).

Our reviewing court instructs us that "[s]oftware can make non-abstract improvements to computer technology just as hardware improvements can, and sometimes the improvements can be accomplished through either route." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). We are further instructed that we must determine whether "the claims are directed to an improvement to computer functionality versus being directed to an abstract idea, even at the first step of the *Alice* analysis." *Id.* Here, the limitations at issue are not directed to an improvement of a computer's functionality. We conclude, at step one, that the independent claims are directed to an abstract idea.

Next, in step two, we must determine whether the additional elements of the independent claims transform them into patent-eligible subject matter. Although the independent claims set forth specific data to be computed and to be used in the computations, they do not indicate what use is made of the results obtained. Rather, the claims recite only processes of "computing" certain data by taking existing information (such as a "modeled notional source signature" and a "recorded near-field signature") and manipulating it

into a new form (such as a "notional source signature"). Appellants' Specification describes at pages 11–18 various equations and "data processing techniques" for performing the recited "computing" steps. As our reviewing court concluded in *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014), "a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible." Thus, the limitations of these claims do not transform the abstract ideas embodied in the claims. Rather, they simply implement those ideas. *See id.* (quoting *Parker v. Flook*, 437 U.S. 584, 595 (1978): "If a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory.").

The independent claims, when considered "both individually and 'as an ordered combination,'" amount to nothing more than an attempt to patent the abstract ideas embodied in the steps of these claims. *See Alice*, 134 S. Ct. at 2355 (quoting *Mayo*, 132 S. Ct. at 1298). Accordingly, the limitations of independent claims 1, 9, and 17 fail to transform the nature of these claims into patent-eligible subject matter. *See id.* (citing *Mayo*, 132 S. Ct. at 1297, 1298).

For similar reasons, the limitations added by dependent claims (2–8, 10–16, and 18–23) do not transform the subject matter of the independent claims. Each of the dependent claims recites only manipulations of data, in the form of steps such as "retrieving," "computing," "comparing," "scaling," "summing" and "transforming" data using mathematical algorithms. Therefore, these claims are also not directed to patent-eligible subject matter.

DECISION

For the above reasons, the Examiner's 35 U.S.C. § 103(a) rejections of claims 1–23 are reversed.

We enter a NEW GROUND OF REJECTION of claims 1–23 under 35 U.S.C. § 101 as directed to non-statutory subject matter.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). Section 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review." Section 41.50(b) also provides:

> When the Board enters such a non-final decision, the appellant, within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> (1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. . . .

> (2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. . . .

Further guidance on responding to a new ground of rejection can be found in the Manual of Patent Examining Procedure § 1214.01.

<u>REVERSED</u>
<u>37 C.F.R. § 41.50(b)</u>